

Application No.: 09/540,289

Docket No.: H2041.0047

**REMARKS/ARGUMENT**

Claims 1-4 are pending. Claim 1 is the only independent claim.

Claims 1, 2 and 4 were rejected under 35 U.S.C. § 103 over U.S. Patent 6,370,202 (Wolcott) in view of U.S. Patent 5,420,887 (Rhodes et al.). Applicant traverses and submits that independent claim 1 is patentable for at least the following reasons.

Independent claim 1 is directed to a multi-rate transmission apparatus in which a coding ratio is varied in accordance with an input modulation operation mode to allow a transmission operation with a single input clock signal in accordance with the input modulation mode. The apparatus comprises: data processing means for reading in data having a bit width suitable for a modulation system corresponding to the input modulation mode, coding means for performing coding processing parallelly for the data read in by the data processing means, and transmission means for transmitting the data, for which the coding processing has been performed, in accordance with the modulation system and the varied coding ratio.

As a result of the recited structure, on the basis of a input clock and an input modulation mode, data can be transmitted, in accordance with the input modulation mode, even if the coding rate is varied.

As was explained in the previous response, Wolcott shows a *self-selective* multi-rate transmitter that automatically, in response to variable input data, using a multitude of modulation formats, transmits data at a constant symbol rate without a priori knowledge of the input data rate. Wolcott sets a modulation mode, e.g., BPSK, QPSK, 16QAM,

Application No.: 09/540,289

Docket No.: H2041.0047

appropriate for the current data rate being input to the transmitter. SIMO 11 accepts variable rate data and generates the appropriate number of parallel output data streams, depending on the data rate. Col. 3, lines 4-9. The faster the rate, the more parallel data streams are created, one for each bit in the required M-ary signal constellation. That is, for BPSK, a single parallel data stream is created, while for 16QAM, four such streams are created, and so forth. The modulation mode is set and the data formatted so that the transmitter transmits at a constant symbol rate, the bits associated with each symbol being adjusted (by adjusting which modulation type is used) to handle different amounts of data required to be output.

As was pointed out in the previous response, the transmitter of Wolcott selects the appropriate modulation mode *without receiving any outside command*. This is the reason the transmitter is called "self-selective". See col. 3, lines 22-25.

However, in the pending Office Action, the position was taken that the mention in the background portion of Wolcott of a programmable transmit module would somehow render obvious a modification of the Wolcott device so as to have a user interface. Applicant strenuously disagrees.

First, to support a proposed modification of a primary reference, there must be motivation in the prior art itself that would have caused one of ordinary skill in the art to have made the modification. In this case, the background section of Wolcott, far from providing such motivation, would actually have *dissuaded* a skilled artisan from making any such modification to Wolcott's self-selective multi-rate transmitter.

Application No.: 09/540,289

Docket No.: H2041.0047

In the background section, at col. 1, lines 5 through 10, Wolcott states that his invention relates to a transmitter architecture "capable of accepting variable input rate data and, using a multitude of modulation formats, transmit the data at a constant symbol rate *without a priori knowledge of the input rate.*" (Emphasis supplied.) That is, an essential feature of Wolcott's invention is that it is self-selective, i.e., *not selected from the outside*. It is well-settled that a proposed modification may not: (1) change the principle of operation of the primary reference; or (2) render the primary reference unsatisfactory for its intended purpose. See MPEP Section 2143.01. In this case, the Office Action completely ignores both of these principles of law.

Wolcott's transmitter self-selects the appropriate modulation operation mode on the basis of the rate of the input data. Wolcott designed his transmitter to overcome the problems associated with prior devices that are not self-selective. This is made quite clear from the background section of the Wolcott patent.

In Wolcott, the intended purpose of the reference also is quite clear: to develop a way to transmit data at a constant symbol rate *without a priori knowledge of the input rate*. Col. 1, lines 29-30. As is stated in the background, the programmable transmit module of the prior art has significant drawbacks. Wolcott's invention is intended to overcome these drawbacks *by not doing things the same way as the prior art*. To say that this disparaging mention of this prior art device, essentially set forth as an example of how Wolcott will not be doing things, would somehow motivate someone to modify the very invention of Wolcott so that is now works like the prior art is completely untenable.

Application No.: 09/540,289

Docket No.: H2041.0047

The prior art must be taken as a whole, including disclosures that teach away from the claims. See MPEP Section 2141.03. No one, after reading all of Wolcott, would be motivated to modify his invention so as to be a variable rate system that would operate at all rates. Quite the opposite in fact. As is stated in the background, “[t]he forward error correction circuit used in the programmable transmit module must operate at all rates, requiring a very complicated clocking scheme. Additionally, switching data rates often requires reconfiguration of the transmitter by way of a command of some sort.” Col. 1, lines 21-25.

Thus, the appearance in the background section of the words “programmable transmit module” would not, contrary to the position taken in the Office Action, render it obvious to modify Wolcott’s invention to include such a module. In fact, the opposite is true. The description of the programmable transit module in the background section makes it very clear that using such a module is disadvantageous. It is believed clear from the above that the very purpose of the Wolcott invention, in fact the stated *reason why his transmitter was invented*, was to achieve a transmitter that *does not use such a module*. For at least this reason, the proposed modification would also change the principle of operation of the Wolcott patent.

The proposed modification: (1) renders the Wolcott device unsatisfactory for its intended purpose, since he intended a device that does not use this feature; (2) changes the principle of operation of the Wolcott device, since it would no longer be self-selecting after the modification; and (3) is *taught away from* by the above-referenced portions of Wolcott. Accordingly, the proposed modification is completely improper and no *prima facie* case of

Application No.: 09/540,289

Docket No.: H2041.0047

obviousness has been established. For at least these reasons, claim 1 is believed clearly patentable over the cited art.

The other claims in this application are each dependent from independent claim 1 discussed above and are therefore believed patentable for the same reasons. Since each dependent claim is also deemed to define an additional aspect of the invention, however, the individual reconsideration of the patentability of each on its own merits is respectfully requested.

In view of the foregoing remarks, Applicant respectfully requests favorable reconsideration and early passage to issue of the present application.

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Respectfully submitted,

By

Joseph W. Ragusa

Registration No.: 38,586

DICKSTEIN SHAPIRO MORIN &amp;

OSHINSKY LLP

1177 Avenue of the Americas

41st Floor

New York, New York 10036-2714

(212) 835-1400

Attorneys for Applicant